

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 82402-5403	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/CA 03/01249	International filing date (day/month/year) 21/08/2003	(Earliest) Priority Date (day/month/year) 21/08/2002
Applicant THE UNIVERSITY OF MANITOBA		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 7 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1A

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA 03/01249

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A method of determining dough strength and predicting dough quality is herein described. The method involves propagating an ultrasound signal through a sample of dough and determining the transit time and amplitude of the ultrasound signal, and hence the ultrasonic velocity and attenuation. These data are then used to determine dough strength and predict product quality. Measurement of dough expansion by digital photography as pressure is varied provides complementary information that is used to determine dough strength and predict product quality.

INTERNATIONAL SEARCH REPORT

Application No
T/CA 03/01249

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N29/18 G01N29/20 G01H5/00 G01N33/10 G01K11/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01N G01H G01K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, COMPENDEX, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LEE H. O., LUAN H., DAUT D.G.: "Use of an Ultrasonic Technique to Evaluate the Rheological Properties of Cheese and Dough" J. FOOD ENG., vol. 16, 1992, pages 127-150, XP009033296 cited in the application abstract	1-9, 32
Y	page 134, last paragraph - page 148, paragraph 1	5
A	----- -/--	10-14, 25-31

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

8 July 2004

Date of mailing of the international search report

07. 10. 2004

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No.

T/CA 03/01249

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LETANG, C., PIAU M., VERDIER C.: "Caractérisation ultrasonore et propriétés rhéologiques de mélanges farine-eau"	1-4,6-9, 32
Y	CAHIERS DE RHEOLOGIE, vol. 15, no. 1, 1996, pages 319-326, XP009033336 cited in the application	5
A	the whole document	10-14, 25-31
Y	----- DATABASE WPI Section Ch, Week 199114 Derwent Publications Ltd., London, GB; Class D11, AN 1991-099773 XP002287562	5
A	MAZHONAS A. R., PYATAUSKA A. I., YUODEIKENE G. F.: & SU 1 552 099 A (KAUNASSK POLT INST ANTANASA) 23 March 1990 (1990-03-23) abstract	1,10,25
A	----- DE 197 25 012 C (BROSE FAHRZEUGTEILE) 5 November 1998 (1998-11-05) abstract; claim 1; figures 1a-1j,4.3,4.6 column 1, line 3 - column 15, line 15 column 21, line 44 - column 22, line 18 -----	1,10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA 03/01249

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see annex

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

~~This International Searching Authority found multiple (groups of)~~
inventions in this international application, as follows:

1. claims: 1-14, 25-31,32 (part)

Ultrasonic transmission measurements are performed at different temperatures and the dough quality is predicted based on the ultrasonic velocity and attenuation of the ultrasound signal measured at the different temperatures.

2. claims: 15-19

Transit time and the amplitude of the ultrasound signal are determined in dough samples with different thicknesses and the dough quality is predicted based on the thickness dependence of the ultrasound signal.

3. claims: 20-24,32(part)

Determination of fermentation response of the dough based on the change in ultrasonic velocity and attenuation of the ultrasound signal measured at different times.

4. claims: 33,34

The dough quality is determined by measuring the cross-sectional change in a receptacle having a given thickness after application of different external pressures and predicting dough quality based on the true strain versus stress.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

PCT/CA 03/01249

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
SU 1552099 A	23-03-1990	SU 1552099 A1 LT 2465 R3	23-03-1990 15-02-1994
DE 19725012 C	05-11-1998	DE 19725012 C1	05-11-1998
		AT 213834 T	15-03-2002
		AU 8532398 A	30-12-1998
		WO 9857163 A1	17-12-1998
		DE 19880838 D2	06-07-2000
		DE 59803202 D1	04-04-2002
		EP 0988538 A1	29-03-2000
		US 6513365 B1	04-02-2003